

Tracking the Trash *p. 1*

A inside look where Duxbury's recyclables go

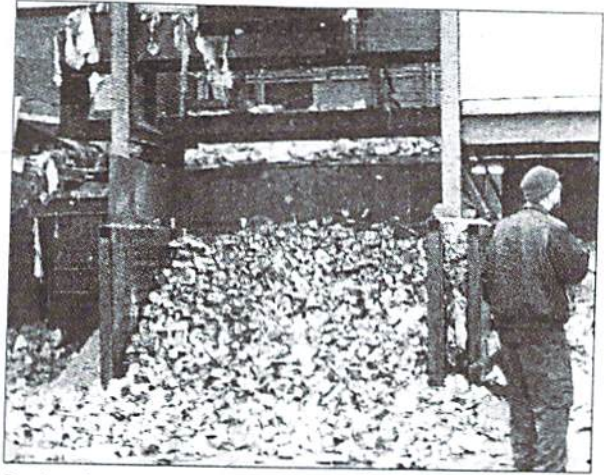
By ADAM SWIFT

For some residents, the new single-stream recycling process has seemed too good to be true, according to DPW Director Tom Daley.

SPECIAL REPORT

"They must think we're just taking everything and throwing it into the woods," he said.

To make sure that isn't the case, Daley and a group of DPW employees, recycling advocates and Town Manager Richard MacDonald took a field trip to the Integrated



Duxbury's recyclables are transported to Integrated Paper Recyclers in North Andover. There, they are separated by type and baled.

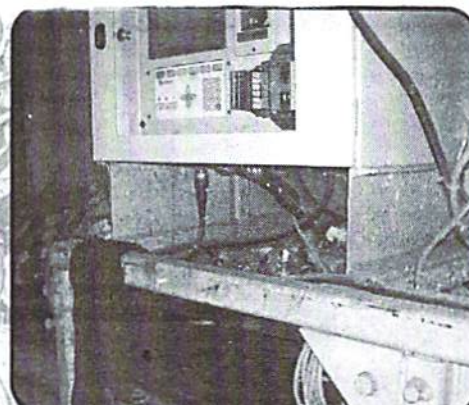
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Cardboard and paper is baled and sent to nearby paper mills in Haverhill and Fitchburg. The mills accept low-grade cardboard, ensuring all the paper that makes it to IPR gets used.



Glass is sorted from the other recyclables and crushed into small pieces. The glass is then further refined and can be used for an asphalt mix in some states outside of Massachusetts.



Once the plastics are separated from the paper and metal, an older system at IPR uses infrared systems to sort the plastics by number and color.



After the plastics are sorted by number and color, they are baled like the paper and cardboard, and then shipped out to processing plants in North Carolina.



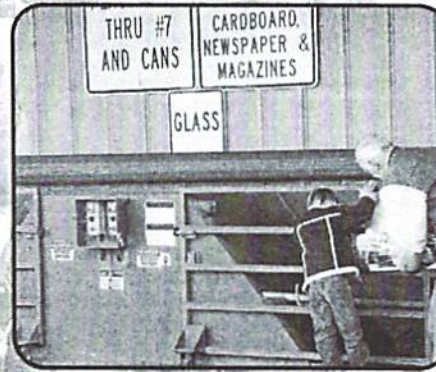
Towering bales of plastic detergent bottles, aluminum cans and cardboard recycled goods are shipped around the country to plants that turn the plastics into rugs, lawn chairs or decking and the paper and cardboard into anything from Kraft Macaroni and Cheese boxes or covers to the latest Harry Potter books.

HOW IT WORKS

Single Stream Recycling



Duxbury residents save all kinds of recyclable materials including plastics, cardboard, aluminum and glass.



All recyclable materials are dropped in one of two single stream recyclable pits at the transfer station.



The commingled recyclables are transported to Integrated Paper Recyclers in North Andover



The recyclables make their way down the Lupo Double ONP screen system. IPR bought the \$2 million piece of equipment from the Netherlands in August.



The materials travel down a system of conveyor belts, where the machine's screening system separates out the cardboard and paper products from plastics and other material on the line.

Aluminum Recycling Facts

- Discovered in the 1820s, aluminum is the most abundant metal on earth.
- Over 50 percent of the aluminum cans produced are recycled.
- A used aluminum can is recycled and back on the grocery shelf as a new can, in as little as 60 days.
- Aluminum is a durable and sustainable metal: 2/3 of the aluminum ever produced is in use today.
- Every minute of everyday, an average of 113,204 aluminum cans are recycled.
- Making new aluminum cans from used cans takes 95 percent less energy and 20 recycled cans can be made with the energy needed to produce one can using virgin ore.
- Recycling one aluminum can saves enough energy to keep a 100-watt bulb burning for almost four hours or run your television for three hours.
- Last year 54 billion cans were recycled saving energy equivalent to 15 million barrels of crude oil - America's entire gas consumption for one day.
- Tossing away an aluminum can wastes as much energy as pouring out half of that can's volume of gasoline.
- The empty aluminum can is worth about 1 cent.

Paper Recycling Facts

- In 2006, the amount of paper recovered for recycling averaged 357 pounds for each man, woman, and child in the United States
- Every ton of paper recycled saves more than 3.3 cubic yards of landfill space.
- By 2012, the paper industry's goal is to recover 55 percent of all the paper Americans consume for recycling, which is approximately 55 million tons of paper
- More than 37 percent of the fiber used to make new paper products in the United States comes from recycled sources.
- Today approximately 80 percent of the nation's paper mills use some recovered fiber in the production of new paper and paperboard products.

Plastic Recycling Facts

- According to the Beverage Marketing Corp, the average American consumed 1.6 gallons of bottled water in 1976. In 2006 each person consumed 28.3 gallons of bottled water.
- In 2006 we spent \$15 billion on bottled water. That's more than we spent on iPods or movie tickets. We will spend \$16 billion in 2007.
- 31% of soda bottles were recycled in 2002, but we only recycled 11% of water bottles.
- Bottled water costs between \$1 and \$4 per gallon and 90% of the cost is in the bottle, lid and label.
- Plastic bottles go to landfills and take 700 years before they start to decompose.
- Manufacturing bottled water uses over 1.5 million barrels of oil per year. In one year, that's enough oil to fuel 100,000 cars.

Glass Recycling Facts

- A glass bottle can take up to one million years to biodegrade, which is how long it will sit in a landfill and take up space if it is not recycled.
- The national recycling rate for glass containers is just over 25 percent, according to a 2005 study by the EPA.
- The typical glass container is made up of as much as 70 percent recycled glass.
- Glass containers produced today are 40% lighter than when they were produced 20 years ago, making them much easier to recycle now.
- Glass containers come in four different colors: clear, blue, brown and green; glass must be separated by color to ensure that new glass is not created from a mix of colors.
- Unlike other substances such as paper, glass can be recycled infinitely without any loss of purity or quality.
- A recycled glass container can go from recycling bin to store shelf in as little as 30 days.
- Recycled glass first becomes cullet, or crushed glass, which uses 40 percent less energy than making glass from new products because it melts at a lower temperature than raw ingredients.

Source: *Earth911.com*

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Paper Recyclers plant in North Andover, the recipient of all Duxbury's recyclables.

There, the group was greeted by towering bales of plastic detergent bottles, aluminum cans and cardboard. Those bales of recycled goods

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are then shipped around the country to plants that turn the plastics

into rugs, lawn chairs or decking and the paper and cardboard into anything from Kraft Macaroni and Cheese boxes or covers to the latest Harry Potter books.

"Nothing gets thrown away," said Christine DeRosa of Integrated Paper Recyclers. "It costs us money to throw away trash, too."

While IPR has been in business for years, DeRosa said single-stream recycling is a fairly new endeavor for the company and for the East Coast in general.

"They've been doing out on the West Coast and in Minnesota for years," she said.

The centerpiece of IPR's new push into single-stream recycling is a \$2 million sorting machine that began operating in August.

The noisy behemoth of conveyor belts and sensors looks like something Willy Wonka would have designed if he had been a sanitation engineer instead of a candy maker.



Piles of recycled materials are deposited near the Lupo Double ONP screening system in North Andover. The machine separates cardboard and paper from other recyclables.

While the infrared sensors are used for the plastics, the aluminum and metal recyclables are separated using magnets.

Everything that is recycled



WHAT CAN BE RECYCLED

- ✓ Plastics #1 through #7
- ✓ Metal cans (including aluminum, steel, tin)
- ✓ Cardboard
- ✓ Paper
- ✓ Glass (bottles & glass jars only)

WHAT CAN'T BE RECYCLED

- ✗ Food and garbage
- ✗ Styrofoam without a number
- ✗ Mirrors or broken glass
- ✗ Dead batteries
- ✗ Automobile fluids
- ✗ Paints, pesticides & fertilizer

The recycling bins are dumped in the main yard where a crane picks up the recyclables and dumps them on the first conveyor belt. On the first run through, cardboard is separated out, then on a subsequent run through, plastics, glass, and metals are separated out.

At a separate station, a conveyor belt equipped with infrared sensors separates plastics by type and color.

is baled and shipped out, where the products find new uses. In some states, although not Massachusetts, the finely crushed glass is mixed with asphalt and used to pave roads.

The paper and cardboard goes to papermills in Haverhill and Fitchburg, DeRosa said. Both of the mills are low-grade paper recyclers,

which allows IPR to ship out all of the paper and cardboard it processes.

With Duxbury recently switching to single-stream recycling, DeRosa said it's still too early to say how much of an increase there is in recycled goods coming into the plant from town.

"We're going to have to wait until the end of December and compare those numbers with last December," she said.

In other towns with single-stream recycling, DeRosa said, there has been a marked increase in recycled goods coming out. However, she said, all of those other towns have curbside pick up for recycling.

Duxbury is the first town in the state to go to a single-stream recycling program at a transfer station.

While the recycling numbers aren't in at IPR, Daley said he has seen a noticeable increase in recycling in Duxbury.

DeRosa noted that even before single-stream recycling began, Duxbury generally recycled a lot of material.

"I do expect to see an increase," she said.

Many of the questions DeRosa fielded after the plant tour centered on the types of recycled materials the plant takes. She said IPR takes all cardboard with the exception of wax boxes.

Pizza boxes are also okay, provided they are reasonably clean.

"I don't want to be getting a half-eaten pizza in it," she said. "You just have to use your judgment."

Styrofoam and plastic bags are also acceptable, although DeRosa suggested that plastic shopping bags should be collected in large black bags, or preferably, returned to the supermarkets for reuse.

While IPR does accept Styrofoam, DeRosa said, the market for Styrofoam is not very favorable, and much of it is kept until it can be gotten rid of in bulk.

Who pays?

The town pays nothing to have its recyclables carted away to the Integrated Paper Recycler's plant in North Andover.

IPR provides containers and compactors for the town's recycling center, and picks up the full containers and brings them to the plant.

Duxbury gets paid for the recyclable paper and cardboard, according to DPW Director Tom Daley. He said that price depends upon the market rate for paper and cardboard. Recently, the price was around \$7.50 per ton, but Daley said that price can fluctuate a bit depending upon the market.

The town doesn't get paid for other materials such as glass and metals, but Daley said the town is saving money, since the hauling fee to transport trash to the SEMASS plant in Rochester is close to \$100 a ton.

IPR makes money by sorting and baling the recycled materials and selling them to processing plants across the country.